UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/228,445	01/11/1999	WILLIAM W. FREITAG JR.	5000-74400	8570

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EXAMINER
NGUYEN, PHUONGCHAU BA

ART UNIT	PAPER NUMBER
2665	16

DATE MAILED: 01/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/228,445	FREITAG ET AL.
	Examiner	Art Unit
	Phuongchau Ba Nguyen	2665

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *10-8-03 Amendment* .

2a) ☒ This action is **FINAL**.　　　　2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-16* is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-11 and 14-16* is/are rejected.

7) ☒ Claim(s) *12 and 13* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

　　If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a) ☐ All　b) ☐ Some *　c) ☐ None of:

　　　1. ☐ Certified copies of the priority documents have been received.

　　　2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

　　　3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
　　　　　application from the International Bureau (PCT Rule 17.2(a)).
　　* See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

　　a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Claim Rejections – 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors

Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology

Technical Amendments Act of 2002 do not apply when the reference is a U.S.

patent resulting directly or indirectly from an international application filed

before November 29, 2000. Therefore, the prior art date of the reference is

determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-

AIPA 35 U.S.C. 102(e)).

2.   Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipate by Marchok

(6,118,758).

Marchok (6,118,758) discloses a serial communication controller for

transmitting and receiving a serial data stream including multiple serial data

channels (connections between the timing and control logic 340, fig.6) having

portions which alternate' in time with respect to each other, comprising:

a plurality of functional units (115, 120, 125, 130; fig.6) configured to

operate in series according to a serial communication protocol, wherein each

functional unit is configured to perform a different specific function of said

serial communication protocol, and wherein the plurality of functional units

operates in time sequence upon the portions of the multiple serial data

channels {col.7, lines 5-8}; and

wherein the plurality of functional units is configured to perform said

serial communication protocol on the multiple serial data channels {col.7, lines

3-5}.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or
> described as set forth in section 102 of this title, if the differences between the subject
> matter sought to be patented and the prior art are such that the subject matter as a whole
> would have been obvious at the time the invention was made to a person having ordinary
> skill in the art to which said subject matter pertains. Patentability shall not be negatived by
> the manner in which the invention was made.

4.   Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Marchok (6,118,758) in view Rowett (5,991,817).

Marchok does not explicitly disclose the claimed feature. However, in the

same field of endeavor, Rowett discloses wherein the serial data stream

includes digital data of only one of the multiple serial data channels at any

given time, and wherein each of the multiple serial data channels is assigned a

periodically recurring time segment and is active during its assigned time

segment, and wherein the plurality of functional units operates upon the active

serial data channel {Rowett, col.11, lines 60-62}. Therefore, it would have been

obvious to an artisan to apply Rowett's teaching to Marchok's system with the

motivation being to keep the maximum overhead of the controller to a mimum.

5.   Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Marchok (6,118,758) in view Kurnick (5,721,726).

Regarding claim 3:

Marchok does not explicitly disclose wherein each functional unit is a

state machine having a set of unique operating states, and wherein each

functional unit comprises a set of memory elements, and wherein state

information stored within the set of memory elements of a given functional unit

determines the one of the unique operating states in which the functional unit

is operating. However, Kurnick further discloses CPM controller loading zero-

deletion state for the corresponding channel along a mask and the input byte

into registers {col.7, lines 11-36}. Therefore, it would have been obvious to an

artisan to implement state register for storing the state of the functional unit

(HDLC framer) as taught by Kurnick to each functional unit (60-72) in

Marchok's system with the motivation being to provide maximize transmitting

or receiving data to each functional unit {col.9, line 60; table T-11} as if the

status/condition of the functional unit is known to avoid overloading at the

functional unit.

Regarding claims 4-5:

Marchok does not explicitly does not explicitly disclose a memory unit

operably coupled to each of the plurality of functional units, wherein the

memory unit includes a separate portion allocated to each of the multiple serial

data channels for storing the state information of the functional units.

However, in the same field of endeavor, Kurnick further discloses Dual-port

Ram 84 (fig.2)(claim 4). Kurnick discloses a microcontroller (50; fig.2) coupled

to each of the plurality of functional units (60-72) and to the memory unit

(dual-port memory), wherein the microcontroller transfers state information

between the functional units and the memory unit such that the plurality of

functional units operates alternately upon the portions of the multiple serial

data channels {col.6, lines 33-56} (claim 5). Therefore, it would have been

obvious to an artisan to apply Kurnick's teaching to Marchok's system with the

motivation being to ensure the integrity of information transfers by checking

the cyclic redundancy status, by providing interrupt channel control and

monitoring the status of the hardware which detects a free token with the

correct priority.

6.   Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Kurnick (5,721,726) in view Marchok (6,118,758).

Regarding claim 14:

Kurnick (5,991,817) discloses a serial communication system,

comprising:

an interface unit (74) adapted for coupling to a transmission medium

(54), wherein the interface unit is configured to receive a receive serial data

stream including alternating portions of multiple serial data channels from the

transmission medium and to provide the receive serial data stream;

a serial communication controller (24, fig.2) coupled to receive the clock

signal and the receive serial data stream, wherein the serial communication

controller comprises a plurality of functional units (60-72) configured to

operate in series according to a serial communication protocol, and wherein

each functional unit is configured to perform a different specific function of

said serial communication protocol, and wherein the plurality of functional

units operates alternately upon the portions of the multiple serial data channels

of the receive serial data stream to perform said serial communication protocol

on the multiple serial data channels {col.6, lines 34-56}.

Kurnick does not explicitly disclose a timing recovery unit coupled to

receive the receive serial data stream from the interface unit, wherein the

timing recovery unit is configured to produce a clock signal derived from the

receive serial data stream and to provide the receive serial data stream.

However, in the same field of endeavor, Marchok (6,118,758) discloses a timing

and control block 140 {col.6, line 65 to col.7, line 1}. Therefore, it would have

been obvious to an artisan to apply Marchok's teaching to Kurnick's system

with the motivation being to provide timing and control signals required to

coordinate the operation of the functional units.

Regarding claim 15:

Kurnick further discloses wherein the serial communication controller

(24) is further configured to produce a transmit serial data stream including

alternating portions of multiple serial data channels {col.6, lines 33-46}, and

wherein the interface unit (74) is coupled to receive the transmit serial data

stream and further configure to drive the transmit serial data stream upon the

transmission medium (28){fig.2, Kurnick}.

Regarding claim 16:

Kurnick further discloses wherein the serial communication controller

(24) is adapted for coupling to a host processor (22){fig.1, Kurnick}.

7.   Claims 6-11 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Kurnick (5,721,726) in view Rowett (5,991,817).

Regarding claim 6:

Kurnick (5,721,726) discloses a serial communication controller (fig.2) for

transmitting and receiving a serial data stream including alternating portions of

multiple serial data channels (90, 92), comprising:

a plurality of functional units (60-72) each configured to perform a

specific function of a serial communication protocol {col.6, lines 4-5}, wherein

each functional unit is a state machine having a set of unique operating states

(i.e., transmitting or receiving state),

a memory unit (84) including a separate portion allocated to each of the

multiple serial data channels for storing the state information of the functional

units; and

microcontroller (50) coupled to each of the plurality of functional units

and to the memory unit, wherein the microcontroller is configured to transfer

state information between the plurality of functional units and the memory unit

such that the plurality of functional units operates alternately upon the portions

of the multiple serial data channels;

wherein different state information (transmitting state or receiving state;

col.6, lines 52-54; col.7, lines 3-10) is transferred for each serial data channel

depending on which serial data channel's portion is being operated on by the

plurality of functional units.

Kurnick does not explicitly disclose wherein each functional unit

comprises a programmable state register, and wherein state information stored

within the state register of a given functional unit determines the one of the

unique operating states in which the functional unit is operating. However, in

the same field of endeavor, Rowett (5,991,817) discloses SCC comprising (TX

status 139). Therefore, it would have been obvious to an artisan to apply

Rowett's teaching to Kurnick' system with the motivation being to associate

status from the SCC on the terminal of packet transmission with the

appropriate descriptor. Also, it is well known in the art that the dual port ram

is used for storing the status to help the controller knowing what to do next

correspond to the status of channels connected to the dual port ram via

controller 50.

Regarding claims 7-9:

Kurnick does not explicitly disclose the claimed features. However, in the

same field of endeavor, Rowett further discloses a time slot assigner group (TSA

46) coupled to the microcontroller, wherein the time slot assigner group (TSA

46) includes clocking circuitry (143, 149; figs.16-17) and keeps track of which

of the multiple serial data channels is active (in 145, 152, 141, 150){claim 7};

The time slot assigner group (TSA 46) produces an output signal (wherein the

output signal read on assigned a time slot which is generated by TSA 46)

indicating which of the multiple serial data channels is active, wherein the

microcontroller (CPU 90) receives the output signal and performs the state

information transfers in response to the output signal {claim 8}; Rowett further

discloses that the time slot assigner group (TSA 46) includes an active time slot

register (SCC register 146), and wherein the contents of the active time slot

register indicate which of the multiple serial data channels is active, and

wherein the microcontroller (CPU 90) reads the active time slot register and

performs the state information transfers dependent upon the contents of the

active time slot register {claim 9}. Therefore, it would have been obvious to an

artisan to apply Rowett's teaching to Kurnick's system with the motivation

being to maximize the assigning time slot process for not selecting the inactive

portion of channel which is already assigned to a functional unit.

Regarding claim 10:

Kurnick further discloses wherein the plurality of functional units (60-

72), the memory unit (dual-port RAM), the microcontroller (50), and the time

slot assigner group (TSA-76 in Kurnick with modification of TSA 46 in Rowett)

are formed upon a single monolithic semiconductor substrate {fig.2, Kurnick}.

Regarding claim 11:

Kurnick (5,721,726) discloses a method for transmitting and receiving a

serial data stream including alternating portions of multiple serial data channels

(90, 92), comprising:

providing a plurality of functional units (60-72) each configured to

perform a specific function of a serial communication protocol upon the

portions of the multiple serial data channels {col.6, lines 3-5, 38-43}, wherein

each functional unit is a state machine having a set of unique operating states

(i.e., transmitting state or receiving state; col.6, lines 52-56), and

transferring state information between the plurality of functional units

and a memory unit such that the plurality of functional units operates

alternately upon the portions of the multiple serial data channels {col.6, lines

33-43};

wherein different state information is transferred for each serial data

channel depending on which serial data channel's portion is being operated on

by the plurality of functional units {col.6, lines 38-43}.

Kurnick does not explicitly disclose that wherein state information stored

within a given functional unit determines the one of the unique operating states

in which the functional unit is operating. However, in the same field of

endeavor, Rowett (5,991,817) discloses SCC comprising (TX status 139).

Therefore, it would have been obvious to an artisan to apply Rowett's teaching

to Kurnick' system with the motivation being to associate status from the SCC

on the terminal of packet transmission with the appropriate descriptor.

Allowable Subject Matter

8.   Claims 12-13 are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of

the limitations of the base claim and any intervening claims.

Response to Arguments

9.   Applicant's arguments filed 10-8-03 have been fully considered but they

are not persuasive.

A/. Applicant argued that Marchok does not operates in series according to a

serial communication protocol, wherein each function unit is configured to

perform a different specific function of said serial communication protocol

        In reply, applicant is directed to figure 6 of Marchok wherein 130, 125,

120, 115 units each had a unique function and connected in series to the time

and control logic unit 140. It is notice that 130, 125, 120, 115 are parallel to

each other because they are all connected in series to 140. Also, all 130, 125,

120, 115 are also connected in serial and performed different function in serial

order, i.e., 130 to 125 to 120 to 115 {fig.6, col.5, line 31-col.6, line 64}

B/. Applicant argued that Marchok does not teach a controller for transmitting

and receiving a serial data stream including multiple serial data channels having

portions which alternate in time with respect to each other, as recited in claim 1

In response to applicant's arguments, the recitation "a controller for

transmitting and receiving a serial data stream including multiple serial data

channels having portions which alternate in time with respect to each other" has

not been given patentable weight because the recitation occurs in the

preamble. A preamble is generally not accorded any patentable weight where it

merely recites the purpose of a process or the intended use of a structure, and

where the body of the claim does not depend on the preamble for

completeness but, instead, the process steps or structural limitations are able

to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and

Kropa v. Robie, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Moreover, all functional units 130, 125, 120, 115 are performed in serial

order, i.e., 130 to 125 to 120 to 115 {fig.6, col.5, line 31-col.6, line 64}

C/. Applicant argued that Kurnick and Rowett do not teach a serial

communication controller for transmitting and receiving a serial data stream

including alternating portion of multiple serial channels, comprising a memory

unit including a separate portion allocated to each of the multiple serial data

channels for storing the state information of the functional units, as recited in

claim 6.

In response to applicant's arguments, the recitation "a controller for

transmitting and receiving a serial data stream including multiple serial data

channels having portions which alternate in time with respect to each other" has

not been given patentable weight because the recitation occurs in the

preamble. A preamble is generally not accorded any patentable weight where it

merely recites the purpose of a process or the intended use of a structure, and

where the body of the claim does not depend on the preamble for

completeness but, instead, the process steps or structural limitations are able

to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and

Kropa v. Robie, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Moreover,

all functional units 130, 125, 120, 115 are performed in serial order, i.e., 130

to 125 to 120 to 115 {fig.6, col.5, line 31-col.6, line 64}

Also, the Dual Port Ram's functional is well known in the art for storing

the status of channels connected to the controller 50 and the controller 50 use

the information/status stored in Dual Port Ram to know what to next

corresponding to the status to channels connected to DPRAM via controller 50.

D/. Applicant argued that Kurnick and Rowett do not teach that different state

information is transferred for each serial data channel depending on which

serial data channel's portion is being operated on by the plurality of functional

units, as recited in claim 6.

In reply, Kurnick discloses the different state information (transmitting

state or receiving state; col.6, lines 52-54; col.7, lines 3-10) and Rowett further

discloses in figure 15 wherein the transmitting and receiving being controlled

by TX-control (139a) and RX-control (139b) and the SCC channels can

transmitted with respected to the TX/RX-control (139a-139b). Also, SCC

channels operated upon the time slot availability thus each available time slot

for transmission is the portion of the serial channel {Rowett, figure 11a}.

E/. Applicant argued Kurnick and Rowett do not teach that each functional unit

comprises a programmable state register, and wherein state information stored

within the state register of a given functional unit determines the one of the

unique operating states in which the functional unit is operating, as recited in

claim 6.

In reply, applicant is directed to Kurnick's figure 2 wherein all functional

units 60-72 either at transmitting or receiving state and Rowett further

discloses transmit and receive FiFo 44 located in each channel and store

transmit and receive data packets. Therefore, it would have been obvious to

apply Rowett's teaching to Kurnick's functional units with the motivation being

to provide the inherent feature of storing/buffering data for transmitting and

receiving to/from the functional units 60-72

F/. Applicant argued that Kurnick and Marchok do not teach timing recovery

unit configured to produce a clock signal derived from the receive serial data

stream and to provide the receive serial data stream, as recited in claim 14.

In reply, Marchok does disclose a centralized timing and control block

140 to provide the timing control signals required to coordinate the operation

of the other processing section and performed decentralized way wherein each

of the individual processing section 130, 125, 120, 115 contain or share

individual timing control circuitry. By decentralized in time the processing

sections 130, 125, 120, 115, Marchok had improved transmission data in a

proper serial manner thus avoid interruption in receiving and processing

improper data in wrong order (i.e., if a signal was encoded, then when it was

being received, it should had been decoding first then processing in other

following step if needed, because without decoded the encoded signal the

processing system would not be functioned properly---emphasis added).

G/. Applicant argued that Kurnick and Marchok do not teach a plurality of

functional units configured to operate in series according to a serial

communication protocol, and wherein each functional unit is configured to

performed a different specific function of the same serial communication

protocol, and wherein plurality of functional units operates alternatively upon

the portion of multiple serial channels of the receive serial data stream to

perform the serial communication protocol on the multiple serial data channels,

as recited in claim 14.

In reply, Marchok does disclose all functional units 130, 125, 120, 115

are performed in serial order, i.e., 130 to 125 to 120 to 115 {fig.6, col.5, line

31-col.6, line 64}. Since the functional units are connected in series and

operated in series, it operated alternatively. Also, Kurnick does disclose the

functional units operated upon the portion of multiple serial channels of the

receive serial data stream to perform the serial communication protocol on the

multiple serial data channels {Kurnick discloses in figure 11a wherein the

availability of time slot is used to determine the operating status of each SCC.

Therefore, the free/available time slot is the portion of the serial channel for

transmitting and receiving.

10.   THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of

time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire

THREE MONTHS from the mailing date of this action. In the event a first reply is

filed within TWO MONTHS of the mailing date of this final action and the

advisory action is not mailed until after the end of the THREE-MONTH

shortened statutory period, then the shortened statutory period will expire on

the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In

no event, however, will the statutory period for reply expire later than SIX

MONTHS from the mailing date of this final action.

11.   Any inquiry concerning this communication or earlier communications

from the examiner should be directed to Phuongchau Ba Nguyen whose

telephone number is 703-305-0093. The examiner can normally be reached

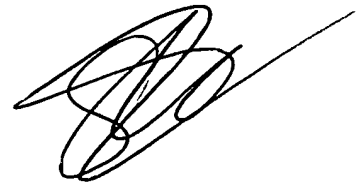on Monday-Friday from 10:00 a.m. to 3:00 p.m..

       If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Huy Vu can be reached on 703-308-6602. The fax

phone numbers for the organization where this application or proceeding is

assigned are 703-872-9314 for regular communications and 703-872-9314

for After Final communications.

Any inquiry of a general nature or relating to the status of this application

or proceeding should be directed to the receptionist whose telephone number

is 703-305-4700.

Phuongchau Ba Nguyen
Examiner
Art Unit 2665

December 29, 2003

STEVEN H. D NGUYEN
PRIMARY EXAMINER